

## SEVENTH INTERNATIONAL CONGRESS OF CHEMISTRY.

THE arrangements in connection with the seventh International Congress of Chemistry, which is to meet in London on May 27, are now practically completed. The series of meetings, which take place every third year, was originally started by a meeting of the Association of Sugar Chemists in Brussels. It was then extended to take in all branches of chemistry. Successive congresses have been held in Paris, Vienna, Paris again, Berlin, and Rome. With each successive meeting the popularity of the congress has increased, and it appears that this one will be not a whit behind those which have previously been held. There are seventeen sections and subsections, and a large number of contributions have been promised to each. The largest number of papers so far promised are for section ii., inorganic chemistry, and section x., electrochemical and physical chemistry. The growth of this latter section within the last few congresses is remarkable.

The amount of work and the number of papers to be got through in many of the sections will entail very careful organisation, and a very strong presidential hand to prevent prolixity. In section x. alone there are already about eighty papers promised, and the actual working time is eighteen and a half hours.

Beside the sectional work, there are to be four general lectures to the whole congress by Sir Boverton Redwood and by Profs. Haller, Paterno, and O. N. Witt. The first act of the congress will be a social one, when the Lord Mayor and Corporation will hold a reception at the Guildhall on Wednesday evening, May 26. On the next morning, at 10 o'clock, the joint organising committee will meet, and at 3 o'clock in the afternoon the inaugural meeting will take place at the Royal Albert Hall, when H.R.H. the Prince of Wales will formally open the congress. In the evening there will be a reception by the Foreign Office. On May 28 the various sections will start work in earnest, when they will be hard at it from 10 to 1.30; and at 2.30 Profs. Haller and Paterno will give their general lectures to the whole congress. In the evening there is to be a banquet at the Crystal Palace in the central transept. The Palace was taken because there is no other place in London sufficiently large to dine 2000 people, and it is hoped that at least this number will be present.

On Saturday morning the sections will meet from 10 to 2 o'clock, and in the afternoon there is to be a garden party at the Botanic Gardens, given by the ladies' committee. In the evening the hard-worked members of the congress will attend a reception given by the London section of the Society of Chemical Industry at the University of London. Sunday is to be devoted to private hospitality, as also is Monday evening. In this matter British hospitality is showing up well, as already the offers of private parties will absorb about 1500 members of the congress.

On Monday morning, May 31, the sectional meetings will take place from 10 to 1.30, and at 2.30 Prof. O. N. Witt will give a lecture to the whole congress, after which the sections will hold session from four to six.

The morning of Tuesday, June 1, is to be devoted to sectional work, and at 2.30 Sir Boverton Redwood will address the combined sections. Sectional meetings will then take place from 4 to 6. In the evening there is to be a reception at the Natural History Museum.

The official closing meeting of the congress is fixed for 10 o'clock on Wednesday, June 2, and in the afternoon the congress will visit Windsor Castle by permission of the King.

It should be mentioned that the annual meeting of the Society of Chemical Industry will commence on the morning of May 26; the presidential address will be delivered at 10.30, and a reception will be held at 4.30, so that those who are members of the Society of Chemical Industry and also of the International Congress will have a very severe week of work, both intellectual and social.

The meetings of the congress will be held in the buildings of the University of London at South Kensington, and at the Imperial College of Science and Technology, where the offices are located.

## THE GOVERNMENT AND AERONAUTICAL RESEARCH.

MR. ASQUITH'S announcement that a special Government Department for Aërial Investigation is being formed will be read with the keenest satisfaction by everyone who is interested in scientific research. It is but a short time ago that the Aërial League was founded under the chairmanship of Colonel Massy, mainly with the object of stimulating national interest in the aërial problem. The evidence before us points to the belief that, whatever other causes may have been at work, Colonel Massy's movement has been to the forefront among them. Of this we have abundant proofs in the fact that about the middle of April proposals of the League were discussed by a committee of the War Office appointed by Mr. Haldane.

An important feature of the movement is the appointment of a scientific committee to organise continuous researches, experimental and otherwise, on problems connected with the design and construction of aërial machines. The National Physical Laboratory at Teddington is to be the centre for these researches, and the committee consists of Lord Rayleigh (president), Dr. Glazebrook (chairman), Major-General Sir Charles Hadden, and Captain R. H. S. Bacon, representing the Army and Navy, Sir A. G. Greenhill and Prof. J. E. Petavel, Dr. W. N. Shaw, and Messrs. Horace Darwin, Mallock, and Lanchester. The Prime Minister has stated that special and adequate funds have been placed at the disposal of the committee, the War Office, and the Admiralty for carrying out the programme.

Regarding the working of the committee, nothing definite has as yet been announced. It seems, however, understood that in addition to experimental work, one of their functions will be to advise the Admiralty and War Office on inventions which may be submitted to them or on processes which it may be in the interests of the country for the Government to acquire instead of allowing them to be divulged.

It is clear, both from the constitution of the committee and from the accounts given in the Press, that mathematical and physical investigations are to receive a large share of attention, and that the mere building of aëroplanes and experience in manipulating them are not to interfere with the less enticing and no less important work of finding out the fundamental principles underlying their construction. The problem of stability is specially singled out for mention. The mathematics of this problem is pretty complicated, and it is easy to remain for a long time within clear sight of final conclusions when there is still much ground to be covered before reaching them. But, given the necessary methods of calculation, experiments are still required to determine the data involved in obtaining numerical results. A mathematical investigation now in progress tends to show that broad aëroplanes may be less stable than might be inferred from ordinary

calculations of their resultant thrust and centre of pressure. But such an investigation is necessarily based on hydrodynamical assumptions, and laboratory experiments are required before any practical use can be made of the conclusions. It must be remembered, on the other hand, that questions of stability or instability of particular types of machine can never be decided by flights in which the human element has a guiding influence. There is still work to be done with models. On the practical side the committee will have abundant experimental work in connection with propellers, for the motion of a screw in fluid presents complications which render any attempt at hydrodynamical treatment practically hopeless.

It is scarcely surprising that the cry "too much theory; fears that talk may injure work" finds its way into the papers, and that some members of the Aëro Club put in a plea for the "practical man." The fact seems, however, to be overlooked that the appointment of this committee forms only part of a general scheme, the practical side being provided by the War Office and the Admiralty, both of which departments have dirigibles in course of construction. A Parliamentary committee embracing politicians of all parties is also announced.

It would be more correct, however, to describe the present position of aëronautics in England as "too much theorising and too little theory." Many papers have found their way into aëronautical and other periodicals, some of them full of algebraic symbols and formulæ, but an investigation is not necessarily mathematical because it contains equations, and the author is not necessarily a mathematician because he employs them. Indeed, in many cases it is the "practical man" who revels in the excessive use and abuse of formulæ, and the mathematician and physicist who would like to bring themselves into touch with practical problems are consequently deterred from reading such literature. Moreover, there is a want of suitable journals for the publication of mathematical and physical investigations bearing on aëronautics. They would be rather out of place in physical journals which deal more with such subjects as electricity and radioactivity; while any writer bold enough to try the journals just mentioned would probably find himself involved in a controversial correspondence, and would learn that too much talk *did* injure work, especially as no good would probably come of his attempts to enlighten his correspondents.

The need is thus becoming imminent for a clear division of labour between the practical man and the physicist, and if such a division should do no more than make the practical man confine his attention more exclusively to experimental work, much would be gained, and his researches would be made more accessible and useful. A division of a similar kind has now, we are glad to learn, been arrived at between the three leading societies devoted to aëronautics, namely, the Aëronautical Society, the Aëro Club, and the Aërial League. The Aëronautical Society mainly exists for the purpose of promoting discussions on aëronautical matters, and these consequently fall within its province. The Aëro Club undertakes the development of aëronautics from the point of view of sport. It desires to encourage men of means and leisure to practise aviation and ballooning for the pleasure they derive, and with the incentive of competing for prizes. Finally, the Aërial League is to be the paramount body in influencing public opinion in the development of the subject from the point of view of national defence. An agreement to this effect has been drawn up and signed by the presidents of the several societies.

England's neglect of science has lost the chemical

and optical industries, and in the automobile industry France had a long start of us. It certainly does appear evident that in regard to aëronautics at least a serious attempt is being made to recover lost ground in the field of international competition.

G. H. BRYAN.

#### DR. GERALD F. YEO, F.R.S.

THROUGH the death of Dr. Gerald F. Yeo, Emeritus professor of King's College, London, physiology has lost within a few weeks yet another of those men who, within the last thirty years, materially assisted in the creation of a British school of this science, which, though of late development compared with Continental schools, has grown with a rapidity and vigour equalled only by the advances made on the bacteriological side of pathology. In the foundation of the Physiological Society, which at first included hardly a score of members, Yeo took an active part, being its honorary secretary for fifteen years from 1874 to 1890.

Born in 1845, he was one of the sons of Henry Yeo, J.P., of Howth, received his education at the Dungannon School, then entered Trinity College, Dublin, and obtained his medical degrees in 1867. After some months of study in the hospitals of Paris, Berlin, and Vienna, he returned to Dublin, where he practised as a surgeon and taught anatomy until 1874. In this year he was elected assistant surgeon of King's College Hospital, and professor of physiology in King's College, the histological part of the work being undertaken by Groves. During this time, until his resignation in 1890, Gerald Yeo, by his lectures, his research work, and, in particular, by his strenuous advocacy of the necessity of the experimental method in physiology, as the chief of those methods by which material advances in this science could alone be made, occupied a prominent and influential position. In 1885 he published a "Manual of Physiology," a book primarily addressed to students, which gave a concise account of the elements of this science. In the Arris and Gale lectures delivered at the Royal College of Surgeons in 1882 on "The relation of experimental physiology to practical medicine," Yeo has probably given all the essential arguments which have so repeatedly been urged by those who claim that the sure basis of physiological knowledge must rest upon experimental work. An excellent account of the systems of medicine not dependent upon physiology compared with the modern methods of rational treatment which depend upon physiological and pathological knowledge, together with a most accurate account of the growth of physiology, is to be found in these lectures. Among other points, Yeo emphasised the paramount influence of Haller, who, not only by his experimental work, but by a comprehensive survey of what was then known of physiology, may be said to have created this science, a science conceived in the days of Galen, quickened in the time of Harvey, but born only in the eighteenth century.

Gerald Yeo was elected a Fellow of the Royal Society in 1890. His original work covered a somewhat restricted field. In 1850 Helmholtz had measured the delayed time, or latent period, which precedes the actual contraction of muscle by the method of Pouillet. Instead of 0.01" for frog's muscle, Yeo, in papers published by himself, and with Cash and Herroun, succeeded, with the pendulum myograph, in halving this value, which in its turn was finally found to be too long by Burdon-Sanderson, who, working with unweighted or slightly weighted muscles, obtained 0.04" as the shortest time of delay,